

CLAIMS

WHAT IS CLAIMED:

1. A communications system, comprising:

5 a physical layer hardware unit adapted to communicate data over a communications channel, the physical layer hardware unit being adapted to receive unencrypted control codes and encrypted user data over the communications channel and transmit an upstream data signal over the communications channel based on the control codes; and

a processing unit adapted to execute a software driver for interfacing with the physical layer hardware unit, the software driver including program instructions for implementing a protocol layer to decrypt the user data and provide the upstream data to the physical layer hardware unit.

2. The system of claim 1, wherein the control codes include at least one of a power level assignment, a frequency assignment, and a time slot assignment.

3. The system of claim 1, wherein the physical layer hardware unit includes:

an analog front end adapted to sample a received signal over the communications channel to generate received signal samples;

20 a downconverter adapted to process the received signal samples to generate a carrierless waveform including the user data; and

a demodulator adapted to demodulate the received signal samples to generate the control codes.

4. The system of claim 3, wherein the physical layer hardware unit includes control logic adapted to receive the control codes and configure the downconverter based on the control codes.

5. The system of claim 4, wherein the control codes include at least one of a power level assignment, a frequency assignment, and a time slot assignment.

6. The system of claim 3, wherein the physical layer hardware unit includes:  
an upconverter adapted to receive the upstream data and generate an upstream digital signal, wherein the analog front end unit is further adapted to receive the upstream digital signal and generate the upstream data signal; and  
control logic adapted to receive the control codes and configure the upconverter based on the control codes.

7. The system of claim 1, wherein the processing unit comprises a computer.

8. The system of claim 7, wherein the computer includes:  
a processor complex adapted to execute the program instructions in the software driver;  
a bus coupled to the processor complex; and  
an expansion card coupled to the bus, the expansion card including the physical layer hardware.

9. A modem, comprising a physical layer hardware unit adapted to communicate data over a communications channel, the physical layer hardware unit being adapted to receive unencrypted control codes and encrypted user data over the communications channel and transmit an upstream data signal over the communications channel based on transmission assignments defined by the control codes.

10. The modem of claim 9, wherein the control codes include at least one of a power level assignment, a frequency assignment, and a time slot assignment.

11. The modem of claim 9, wherein the physical layer hardware unit includes:  
an analog front end adapted to sample a received signal over the communications channel to generate received signal samples;  
a downconverter adapted to process the received signal samples to generate a carrierless waveform including the user data; and  
a demodulator adapted to demodulate the received signal samples to generate the control codes.

12. The modem of claim 11, wherein the physical layer hardware unit includes control logic adapted to receive the control codes and configure the downconverter based on the control codes.

13. The modem of claim 12, wherein the control codes include at least one of a power level assignment, a frequency assignment, and a time slot assignment.

14. The modem of claim 11, wherein the physical layer hardware unit includes:  
an upconverter adapted to receive the upstream data and generate an upstream digital  
signal, wherein the analog front end unit is further adapted to receive the  
upstream digital signal and generate the upstream data signal; and  
control logic adapted to receive the control codes and configure the upconverter based  
on the control codes.

15. A method for configuring a transceiver, comprising:  
receiving unencrypted control codes over a communications channel;  
receiving encrypted user data over the communications channel; and  
transmitting an upstream signal over the communications channel based on  
transmission assignments defined by the control codes.

16. The method of claim 15, wherein transmitting the upstream signal comprises  
transmitting the upstream signal based on at least one of a power level assignment, a  
frequency assignment, and a time slot assignment.

17. The method of claim 15, further comprising:  
sampling a received signal over the communications channel to generate received  
signal samples;  
downconverting the received signal samples to generate a carrierless waveform  
including the user data; and  
demodulating the received signal samples to generate the control codes.

18. The method of claim 17, wherein downconverting the received signal samples to generate the carrierless waveform including the user data comprises downconverting the received signal samples based on the control codes.

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19. A modem, comprising:

means for receiving unencrypted control codes over a communications channel;

means for receiving encrypted user data over the communications channel; and

means for transmitting an upstream signal over the communications channel based on transmission assignments defined by the control codes.

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